THE B&O MODELER

Volume 7, Number 4 **July/August 2011**

MODELING B&O'S CLASS I-13 CABOOSE – SECOND SECTION
MODELING B&O'S CLASS I-16 CABOOSE
PHOTO STUDY – B&O CLASS I-16 CABOOSE

Editor – Bruce D. Griffin at bruce_griffin@earthlink.net
Associate Editor – Benjamin Hom at b.hom@att.net
Model Products News Editor – Clark Cone at cconess@carolina.rr.com
Modeling Committee Chair – Bill Barringer at barbllsn@aol.com
Index Editor - Jim Ford at jimford40@sbcglobal.net

Manuscripts and photographs submitted for publication are considered to be gratis and no reimbursement will be made to the author or the photographer(s) or his/her representative(s). Please contact the Editor with comments and corrections and for submission guidelines. Statements and opinions made are those of the authors and do not necessarily represent those of the B&ORRHS.

Cover Photos – Top, HO scale B&O Class I-16 Caboose – Chris Tilley photo. Bottom, HO scale Oriental Limited B&O Class I-13 Caboose – John Teichmoeller photo.

AN INVITATION TO JOIN THE B&O RAILROAD HISTORICAL SOCIETY

The Baltimore and Ohio Railroad Historical Society is an independent non-profit educational corporation. The Society's purpose is to foster interest, research, preservation, and the distribution of information concerning the B&O. Its membership is spread throughout the United States and numerous foreign countries, and its scope includes all facets of the B&O's history. Currently the Society has over 1600 registered members.

Members regularly receive a variety of publications offering news, comments, technical information, and in-depth coverage of the B&O and its related companies. In addition to *The B&O Modeler*, the Society has published *The Sentinel* since 1979, a quarterly magazine featuring articles and news items of historical significance. Other Society publications include monographs, calendars, equipment rosters, and reprints of original B&O source material. Their purpose is to make otherwise unobtainable data available to the membership at reasonable cost. Membership in the Society is a vote of support and makes all of the Society's work possible. It provides those interested in the B&O with a legitimate, respected voice in the railroad and historical communities. By working together, B&O fans are able to accomplish much more than by individual efforts. No matter how diverse your interests or how arcane your specialty, others share your fascination with America's most historic railroad. We invite your participation. Several classes of annual memberships are available, Regular memberships are only $35.00. If you would like to join, visit the website, http://borhs.org/Membership/membership.html to fill out a membership application, print a copy and mail it to:

B&ORRHS
ATTN: Membership
P.O. Box 24225
Baltimore, MD 21227-0725

FROM THE (GUEST) EDITOR

Sharing is Fun! I first met Bruce at the local hobby shop in Greensboro about 20 years ago. We exchanged ideas over lunches for several years before finally I brought some locomotives and he brought a digital camera. A few lunches later, Bruce hit me up with this new idea about an “electronic” magazine. He even put together a test issue and emailed it to me. (I still have that issue by the way…) Although it seemed like an interesting idea at the time, I was busy with military stuff (or so I thought) and about to get married. And I was busy building models. He finally convinced me to write a short article about one of my models, which wound up in *The Sentinel*.

Fast forward a few years and this thing called *The B&O Modeler* was actually online and a pretty sharp publication. I had no idea the audience was so large until joining the Yahoo news group and reading all

the comments on the various models. Of course, there are issues (no pun intended) with modeling and sharing with the world. Especially when you take a photo of something you thought was pretty good and blow it up to 5 times life size. All the glaring mistakes begin to glare. The camera becomes an important part of modeling. But the level of modeling is raised. And time behind the keyboard increases.

Bruce and I were both going through our higher level education tribulations at the same time and time was at a premium. Trying to study four hours per day, work a fulltime job, raise kids and still build models was tough. I came to realize that I no longer consider a model "finished" until I have roughed out an article and sent it to Bruce for consideration. I also discovered that taking in-progress photos and making notes on what certain pieces were cobbled up from makes the authorship much easier.

Finally, I realized that I really like sharing my experiences with friends, some of whom I have met in person on my various travels (THAT is a funny story), some I have yet to meet, and some I may never meet. Friends, nonetheless. Togetherness through technology is a wonderful thing. I have clarified what the authors of some of my key reference books meant when they made certain statements, discovered things they left out or didn't know at the time of publication, and shared my impressions of what they were trying to say by duplication in HO scale. It is my form of expression, so to speak.

The bottom line at the bottom is this: There is a vast amount of first-hand knowledge about our favorite railroad that many of us take for granted. Sadly, there will come a day when no more new info will be available to be discovered and all our old heads will be out on the rails for all time. Get involved now! Don't be shy. There are people willing to share info with any who will ask. The best way to learn about something is to research it, model it, and hold it up to the cameras for all to see. You will get comments, kudos and constructive criticism which will improve your knowledge and modeling abilities. And – you will make some good friends in the process.

Chris Tilley

UPDATES AND ERRATA

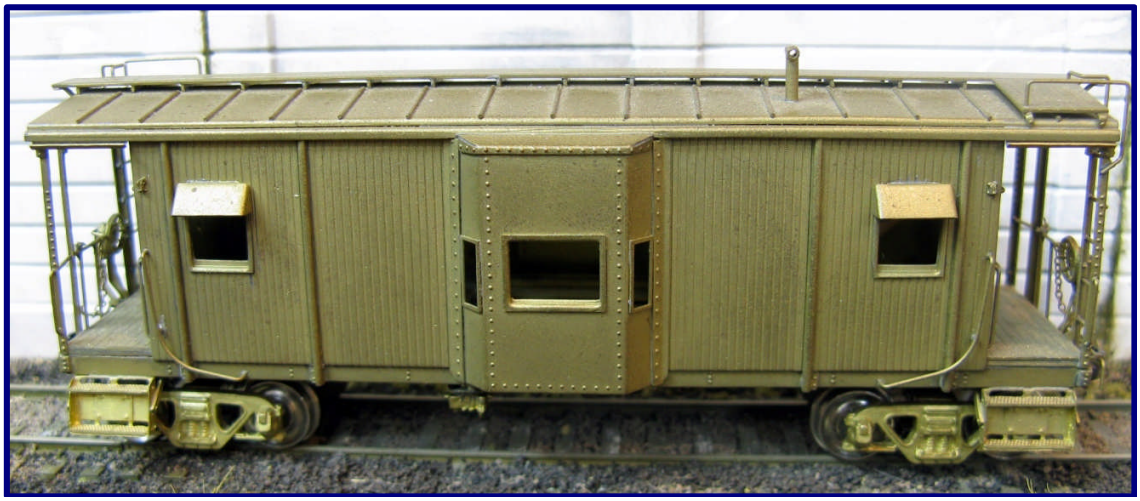
MODELING B&O'S CLASS I-13 CABOOSE - SECOND SECTION

BY JOHN TEICHMOELLER
ALL PHOTOS BY AUTHOR

Chris Tilley's piece in the November/December 2010 issue of *The B&O Modeler* gave a detailed approach for scratch-building an HO model of this interesting class of caboose. Some readers may recall that back in 1988, Oriental Limited imported a brass version of this car. The prototype was covered in a piece in *The Sentinel*, Vol. 10, No. 3, May-June 1988, with nine prototype photos and one of the Oriental model. A brief review of the model was also offered by *Sentinel* editor Gary Schlerf:

> "The model is well built and all dimensions are very close to company drawings. The model represents an improved version of the I-13. Having larger steps and includes the detail of an excess [sic] hatch in a riser of each set of steps to allow for servicing of truck journals. However, the smoke jack appears too close towards the center of the car, the side ribs appear as rolled ribs instead of the angle iron apparent in the accompany photos *[and Chris shows the directions the angles should point—I am guessing these were Z shapes on the prototype, perhaps rolled at Cumberland – J. T.]* Also the small end windows of each bay are noticeable [sic] lower than the large window. They should be the same height. The safety grab irons above end windows are not angled enough. These are small shortcomings and once painted, they are hardly noticeable."

In addition to Gary's comments, I would add that the railings that extend above the roof from the end ladders are not high enough on the model. I don't trust my soldering skills enough yet to try to fix this without all the end railings coming apart. The car does suffer from an easily fixed problem shared with most brass cars, namely weasely trucks. They are screw-equalized coined sideframes of AAR-spring trucks. First of all they don't roll well; second they come apart easily in service (screws come out). Third, paint will rub off the metal sideframes eventually and they will short out on the steps.



Fourth, the coined detail is shallow and just not that good. So I intend to replace them, probably with inexpensive and sharply detailed Tichy AAR-style leaf-spring caboose trucks. Some prototype photos show some of the cars riding on what look like leaf-spring Vulcan trucks, but I don't believe anyone makes those for HO. Maybe one of these days, after a lot of other projects are done, I will follow Chris's approach and scratch build a car without the above defects. Meanwhile, I need to get cracking, clean it up, change out the trucks, paint it and letter it with Ed Sauer's fine decals.

This I-13 class and its cousin "conversion" class, I-16 (from Class M-13 and subclass boxcars), seem to have gotten around the system quite a bit and I felt I should have one of each. A kit for the I-16 was made by Pro-Custom Hobbies. I purchased one on the

secondary market some years ago, long after they came out, but recently and before I had time to build it, I lucked out by acquiring a well-built-up kit for a nominal price, needing only minor repairs. And not having Chris's determination, many years ago I picked up the brass I-13 on the "secondary market." Maybe if Joe Luber of Pro-Custom Hobbies had lived long enough, he would have done a kit for the I-13. A couple photos of my—as yet unpainted—I-13 model are offered here.

WAR EMERGENCY CABOOSES, PART II
B&O'S CLASS I-16 CABOOSE

BY: CHRIS TILLEY

PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.

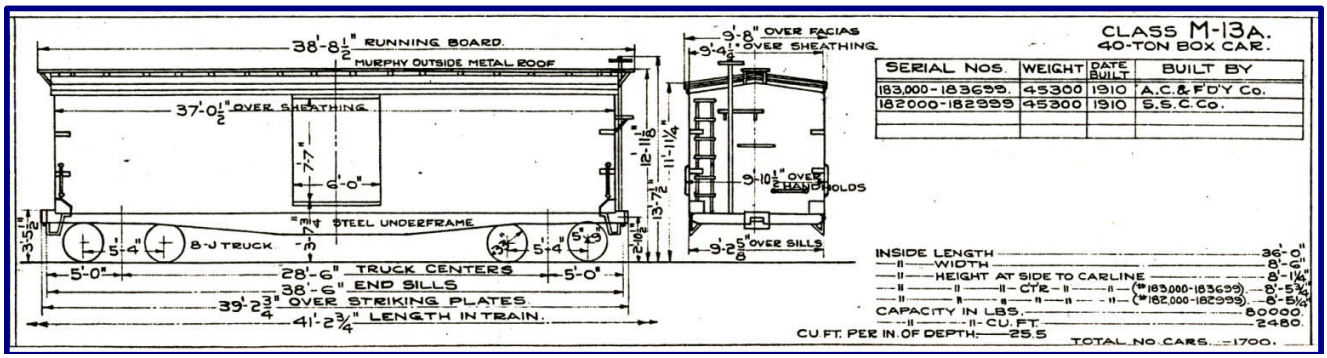
History

As mentioned in my earlier article on the I-13 class in the November/December 2010 issue of *The B&O Modeler*, the B&O was terribly short of cabooses during the period just before and during World War II. To alleviate this shortage, they again resorted to full-scale kitbashing. Beginning with Class M-13, M-13a, and M-13b boxcars built in February 1910 by Standard Steel Car Company, the company created 175 additional cabooses at very low cost and very low levels of steel consumption. Steel was in short supply during the war years to make tanks, ships and aircraft parts, not to mention millions of shells. Of course, the B&O would have preferred more of their newly designed wagontop cars, or maybe further production of the I-7 steel bay window cars, but War Production Board edicts prevented that plan. B&O took some old boxcars, placed prefabricated steel bay windows into the door openings and removed a portion of the sides and ends to allow for a platform at each end. A few recycled crew comfort and safety items completed the car. All that at a great price and no livestock smell like the I-13's!

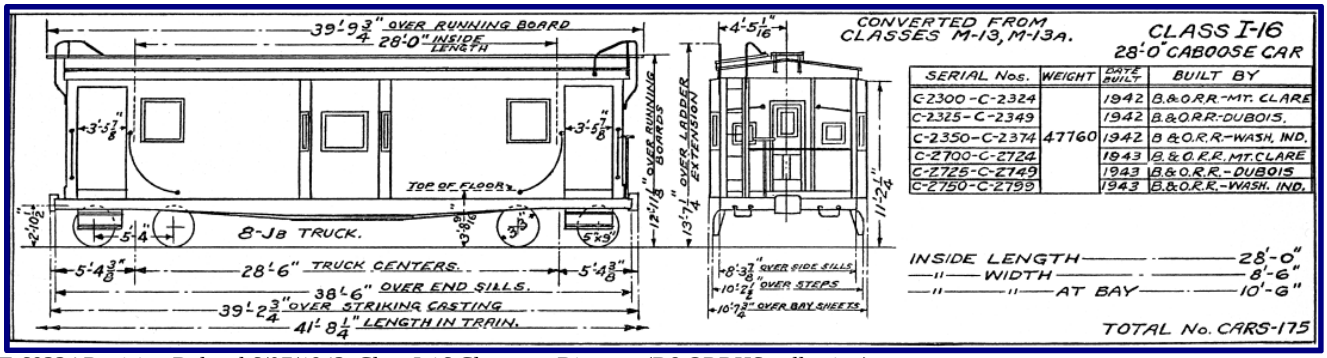
Prototype Information

Figure 1: B&O C-2352 (Gary Mittner photo).

The Class I-16 cabooses were built by the company beginning in 1942. The first 75 were in number series C-2300 through C-2374. Another series was converted the following year, C-2700 through C-2799 for a total of 175 cars. After the war, some were put into yard service, and others into MOW duty. The last car in the series was retired in 1977 after almost 70 years' service – the Company certainly got their money's worth! *[More prototype photos from the Society archives follow Chris' article. – Ed.]*



T-44993, Class M-13a Clearance Diagram (B&ORRHS collection).



T-69334 Revision B dated 6/07/1943, Class I-16 Clearance Diagram (B&ORRHS collection).

The Model
This model began as an Accurail double sheathed 40 foot boxcar kit in December 2003. Luckily, I kept my notes in the kit box in the hopes of someday sharing an article with readers. The advent of *The B&O Modeler* a few years later made this a possibility. The reason the Accurail kit was selected was the fish belly center sill and approximately correct spacing of the sheathing boards.

Underframe
The first step of this model is to build the underframe. Start with the stock underframe and instead of putting the fishbelly girders down the center of the car, glue them under the edge of the floor flush with the side of the car with the flange facing inward. There are several holes for brake rigging and cross members which must be filled and sanded smooth. Use Squadron green or white model putty. The trucks are much closer to the end of the car than most cabooses and cause their own set of problems with clearance and steps which will be addressed later. The overall length of the car is 38'6" over the end sill.

Add the desired level of brake detail and piping and set aside. One of the small details that are very visible is the jacking pad, cobbled together from bits of styrene. Now is a good time to paint the underframe black. Steal a set of poling pockets from some unsuspecting freight car on your layout and attach to the end of the sidesill.

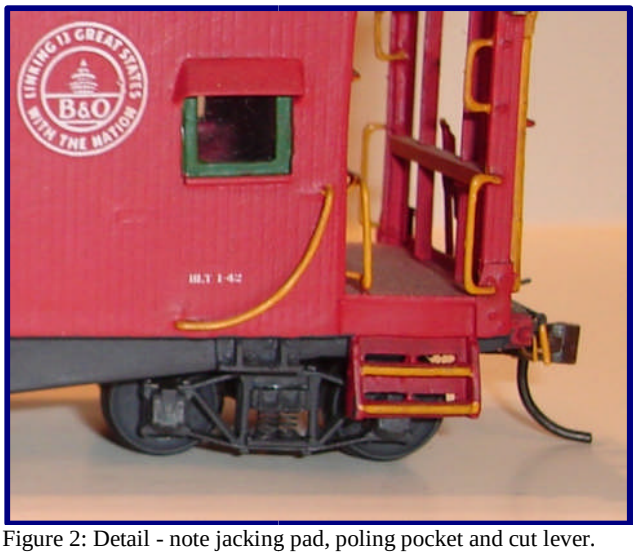


Figure 2: Detail - note jacking pad, poling pocket and cut lever.

Carbody
Just like on the prototype, the carbody modification is not too difficult. Start by removing all the cast-on grabirons. Shave them flush with a sharp X-Acto #17 blade. Then clean out the grooves in the siding with a sharp file point or knife blade point until there is no evidence they were there. Then remove all roof detail and sand smooth. Remove both ends by making a cut through the end, parallel with the car side and along the underside of the roof. I used a number of light passes with a sharp X-Acto #11 blade from the inside of the car. Continue by making a line 9 inches down from the top of the roof down both sides. Count in 3 boards from the end and mark from top to bottom on each end of the car side. From that mark, come in an additional 2'3" and mark that from top to bottom. This line will become the new end of the carbody. The area between the lines is the area to be removed. Extreme care is required to keep from breaking this small, 3 board wide section off. I made a holding tool out of several thicknesses of scrap lumber about a foot long to go inside the car to support the sides while cutting in the windows, etc. Cut the side windows now. Each window bottom is 4'0" above the bottom of the side and 1'6" in from the new end. The windows are 2'6" square. Finally, remove the doors/frames and all hardware. This left a very large hole in the car side which was patched with Evergreen #2030 scribed siding. Put some scraps on the back side of the joints for reinforcement, but make sure they will not interfere with mounting the body to the underframe. Also, make sure it is all flat and even on the outside. My car wound up slightly out of sync and one of the seams is more visible than I would have liked. The bay window is made of 5 pieces of .030 styrene sheet. Bevel all the edges for a good fit. The overall width of the bay is 8'0" (to fit the 8 foot door opening of the original boxcar). The main sheet is 7'0" x 8'4" tall. The 3' wide x 2'6" tall window is centered with the bottom 2'9" above the bottom of the bay. The ends of the bay are 1'6" wide. The hard part of it is that the outboard edge is 8'4" tall but the inboard edge is 8'9" tall to provide a slope to the roof. Cut a roof section and floor section to fit. While the cement sets hard, make an identical duplicate of the bay assembly. If necessary, fill the joints with putty and sand smooth. I added the two rows of rivets below the window (4 in each row) with a push pin (with the point rounded somewhat) from the back side of the sheet. You may want to practice a few times to prevent punching all the way through. Archer Surface Details rivet decals could also be used but they were not yet available when this model was originally built.
(http://www.archertransfers.com)

Glue the bays to the car body even with the bottom of the sides. When completely dry, add a strip of Evergreen 103 .010x.060 strip to cover the seam along the edge of the bay-to-wall joint. There are six equally spaced rivets embossed on the strip. Add a strip along the top and bottom of the bay also. Note the spacing of the rivets varies. Be sure to add a .030 styrene reinforcement strip on the backside of the seams as well, taking into account how far the underframe will go up into the carbody.

For all the windows on the car except the two on the end wall and the two small windows on the bay ends, glue a sheet of .020 styrene behind the window opening. When dry, drill a hole in the center and enlarge with files, leaving about a 2 scale inch flange around the inside edge of the window. This is the sash which is green in all the model photos.

Figure 3: Bay window detail. Note varying rivet spacing embossed on styrene strip trim and air release valve lever below window. Two support braces are barely visible below the bay.

Figure 4: Roof view of I-16. Panel seams are 1/32" pinstripe tape on 3 foot centers. Ladder extensions are different heights on each end.

Start the roof by marking a line down the centerline of the roof. Then mark the centerline across the car. Mark additional transverse lines every 3 feet. Make sure they are square. I purchased the narrowest automotive pinstripe tape I could find, about 1/32". Stick this down on the lines to simulate the seams between the roof panels. The paint will help secure these. I think I used the kit's included running boards and end walks, but you can make your own. Don't actually add the running boards until just before painting.

Start the ends by cutting a piece of the scribed siding for the end platform. The boards ran perpendicular to the rails. The piece should be the same width as the underframe and 3'6" long, to make sure the piece is long enough to go under the end wall. Glue to the underframe. Cut another piece of the same scribed siding used earlier. It should fit between the sides without bowing them. It should also be shorter than the carbody side to allow for the floor. Measure and/or test fit before doing the windows. Now cut in the small windows and door opening. The door is 2'3" wide and about 5'9" tall, but make the opening fit your door. I used Grandt Line's 5063 D&RGW caboose door. The inside edge of the window is 2'9" from the edge of the car side, NOT the edge of the end wall piece. This allows for the thickness of the side walls. The outside edge of the window is 1'2" from the edge (that makes the windows 18" square).
I messed this up the first time and had to redo it. The top of the window is 3'9" below the edge of the roof.

Cut the top of the end piece to get a good fit up under the roof overhang. Put a .030 x .030 trim strip across the joint if desired.

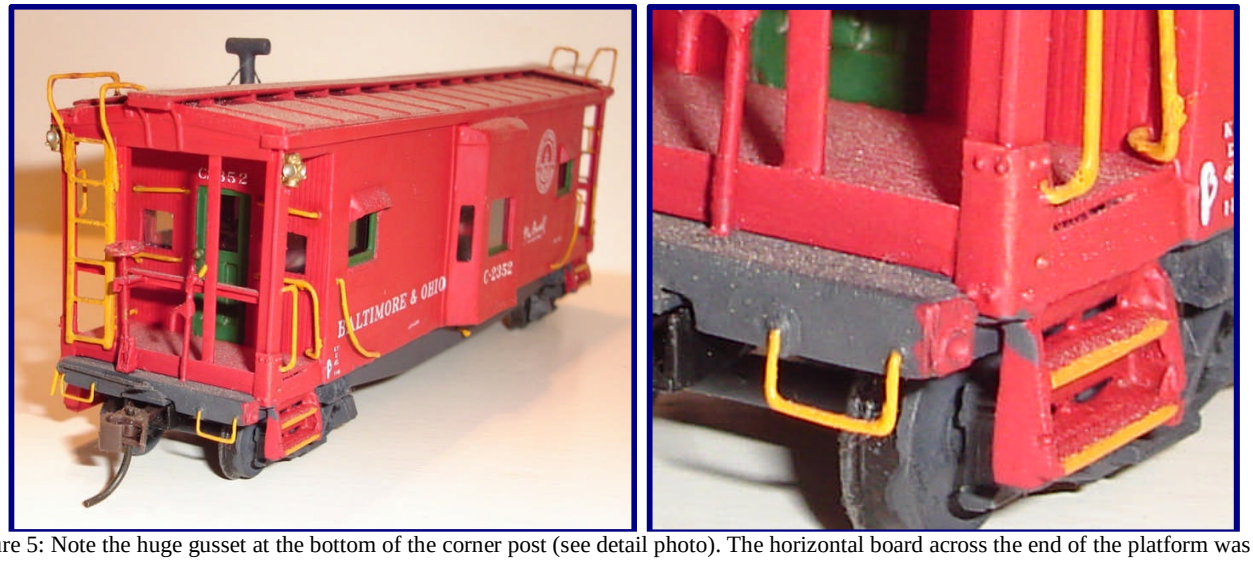


Figure 5: Note the huge gusset at the bottom of the corner post (see detail photo). The horizontal board across the end of the platform was not present on all cars in this class. The signaling device was made from several pieces of brass wire soldered and filed.

Test fit the carbody to the underframe. Make sure the bottom of the sides are flush with the bottom of the floor. File the ends to make it fit if necessary. Temporarily glue the body to the underframe with small dabs of ACC. Cut the corner posts to fit, using Evergreen 291 styrene angle. Glue under the end, and to the 3 board remainder on the corner, but not to the platform. Then do the same with the inboard angles. Next, add the horizontal angle (note this is not a round rod like most cabooses). Notch the web of the horizontal piece to accommodate the flange of the vertical pieces. Add the triangular fascia at the top, under the edge of the roof (cut to fit from .020 scrap). Then add the horizontal kick board along the floor if your car had one. Now is the time to fabricate the large gusset at the bottom of the corner post (see Figure 5). It is the width of the 3 boards on the side and the corner post on the end (about 18 inches total) and 21 inches tall. I cut this out of .010 brass sheet from the scrap bin and embossed the rivets in the same manner as on the bay window sides. Bend to fit before making the rivets. Glue in place with ACC. Then add a 6 rung section of Tichy boxcar ladders to the left corner of the end. Note that there is a strip of styrene between the corner post and the end of the side sheet (the red piece behind the top of the steps). Cut this and glue to the end and side but not to the underframe. A layer of waxed paper between the red piece and the underframe can prevent bleedover and unintended attachment. Drill and attach the various grab irons, bent from .012 brass wire. Go back to figure 2 and notice that some of the grabs on the end posts are from outside to inside and some are from inside to out. Once this has all dried overnight, remove the carbody carefully from the underframe.

The I-16 had vertical brake staffs on both ends. I used pieces from the Tichy brake parts sprue for this. There are small triangular braces under the floor of the bay window, made from business card (.020 styrene would work) – see Figure 4. Other details include the marker lamps, which are Cal-Scale 190-312 loco markers with the wire cut off, Tichy drop grabs on the end beam and the steps, which were scavenged from an old Gloor-Craft (?) kit. The smoke jack was made from a piece of styrene sprue with a hole drilled through and a .010 brass guy wire. The awnings over the side windows were made from a business card. Finally, the ladder extensions above the roofline are notable. They are formed from .015 brass wire, based on photos of the car in question. They appear to have been different on some other cars. The extensions are taller on one end of the car than the other. At first I thought this was an optical illusion in the photo, but the Mechanical Department diagram showed one end taller than the other. This car has Kadee arch bar trucks, but if I was going to run it regularly, I would use plastic trucks with the outboard journal lids ground flat for more clearance. As it is now, the outboard journals bind with the step castings. On the prototype, this would not be an issue, but model railroad curves are much sharper, so the trucks must turn more. Some cars received other

style trucks over time, so consult photos as always. I used what I had on hand at the time.

Some I-16s had various improvements to make cutting off helpers on the fly easier and safer for the conductors. Some had a chain from the horizontal end rail to the coupler cut lever to lift the pin and cut off the helper. Some had an extended wire handle from the angle cock to a level above the platform so the air could be turned off. Some had a chain from the horizontal end rail to the glad hand to break the air hose connection. Some cars had all three of these, or various combinations. C-2352 had none of these. They are easy to model, however. The chains are just fine brass chain available from Walthers or your local hobby shop. The valve handle extension is just a piece of .010 brass wire from the angle cock to the platform. The air release valve handles are centered under the bay window and are simply some lift rings from the scrap box.

Painting and Decals

The I-16s were painted red in all the photos I have seen, a color which seems close to Floquil's Caboose Red. The underframe was painted in their Engine Black, but on second thought, weathered black would make the details show up better. The handrails and ladders are all painted with Badger D&RGW Yellow. The decals were scavenged from PMSS kits, but reader beware – there are several variations of lettering shown in Mr. Hubler's book, so consult photos of the car you wish to build for greatest accuracy. I used the 13 Great States emblem on the right of the bay window and the roadname spelled out to the left. The number (with dash) is centered under the bay window. I added a couple of chalk marks or graffiti with a white ink pen based on photos of C-2352.

I hope you enjoy this historical modeling project – an example of 1:1 scale kitbashing that served for decades.

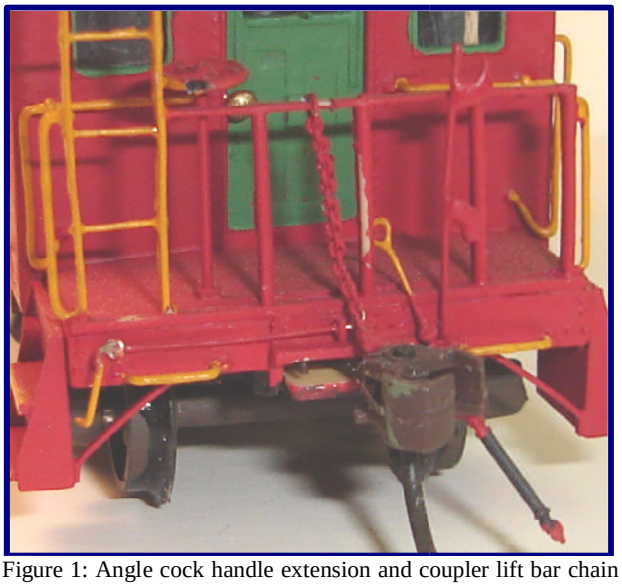


Figure 1: Angle cock handle extension and coupler lift bar chain (from a different model) for illustrative purposes.

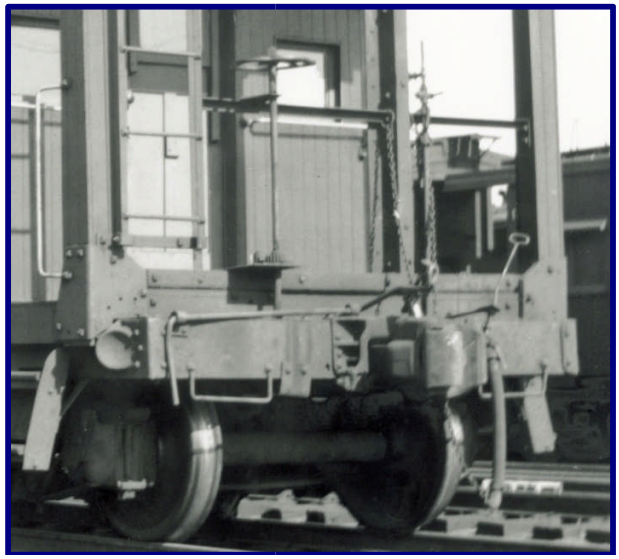


Figure 7: B&O C2777, Class I-16, end detail showing coupler lift bar chain and angle cock handle extension. (Hagerstown, MD, May 22, 1946, B&ORRHS collection)

Acknowledgements

Al McEvoy, Gary Mittner, Nick Powell.

References:

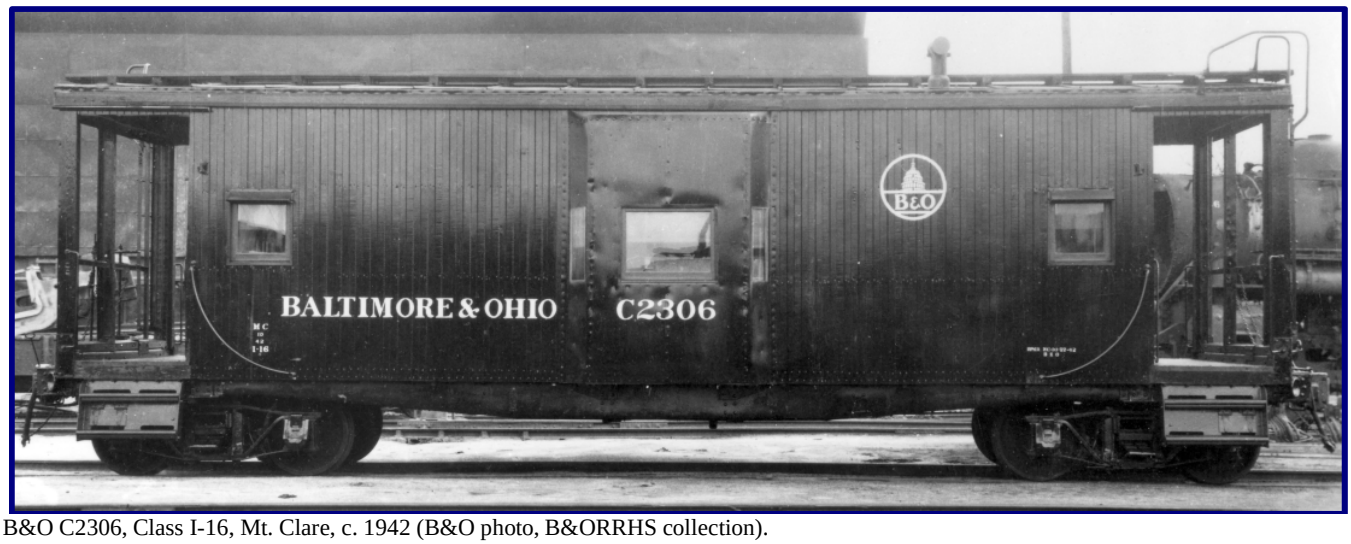
B&O Color Guide to Freight and Passenger Cars, Craig Bossler, Morning Sun Books, 1996.
Baltimore & Ohio Cabooses – Photos and Diagrams, Dwight Jones, TLC Publishing, 1998.
Cabooses of the Baltimore & Ohio, Robert Hubler with contributions by Gary Schlerf, Edited by John Hankey, B&ORRHS, 1994.

Bill of Materials

Manufacturer	Part Number	Description
Accurail http://www.accurail.com	4607	40’ Double Sheathed Boxcar
Badger Accu-Flex Paints		D&RGW Yellow
Detail Associates	2503 2504 2505 2206	Brass Wire, .010” Brass Wire, .012” Brass Wire, .015 Lift Ring
Evergreen Models http://www.evergreenscalemodels.com	2030 9030 9020 131 103 191	.020 scribed siding .030 styrene sheet .020 styrene sheet .030 x .030 strip .010 x .060 strip .060 L angle
Floquil Paints http://www.testors.com/category/133504/Floquil	110020 110174 110010 110017	Caboose Red Southern Green Engine Black or Weathered Black
Grandt Line http://www.grandtline.com/	5063	D&RGW Caboose Door
Kadee http://www.kadee.com	5 501	Coupler set #5 Arch Bar Truck
K&S http://www.ksmetals.com		Brass Sheet, .010
Pep Boys Automotive http://www.pepboys.com/		1/32” automotive pinstripe tape
Tichy Train Group http://www.tichytraingroup.com/	3033 3015	Ladder 18” Drop Step Grab

PHOTO STUDY: CLASS I-16 CABOOSE
FROM THE B&O RAILROAD HISTORICAL SOCIETY ARCHIVES

B&O 180312, Class M-13, Mt. Clare, c. 1907 (B&ORRHS collection)



B&O C2306, Class I-16, Mt. Clare, c. 1942 (B&O photo, B&ORRHS collection).

B&O C2311, Class I-16, Riverside Yard, Baltimore MD, January 28, 1950. (B&ORRHS collection). Photo is cropped wide to give modelers weathering ideas from the other caboose and hoppers in the background.

B&O C2702, Class I-16, Bailey's, Baltimore MD, August 9, 1944 (L. W. Rice photo, B&ORRHS collection).

B&O 6194, Class S-1a 2-10-2 "Big Six" and B&O C2777, Class I-16, Hagerstown MD, May 22, 1946 (B&ORRHS collection).

B&O C2702, Class I-16, c. late 1940s (Carl Gerber photo, B&ORRHS collection).

B&O C2702, Class I-16, converted to transfer caboose, Chicago IL, date unknown. Note the "chalking" - the white paint running down from the “B&O”, herald, and car number -- a great effect for weathering. (Owen Leander photo, B&ORRHS collection)

B&O C2769, Class I-16, converted into transfer caboose, Chicago IL, c. 1964 (Owen Leander photo, B&ORRHS collection).

B&O C2355, Class I-16 resheathed with plywood, Chillicothe OH, June 1970 (Paul Dunn photo, B&ORRHS collection).

B&O X2131 (ex-C2365), Class I-16 in camp service, Newark OH (B&ORRHS collection).

B&O X2131 (ex-C2365), Class I-16 in camp service, Newark OH, c. 1972 (Paul Dunn photo, B&ORRHS collection).

"Hind end eastbound for Brunswick had in its consist [Class I-16 caboose B&O C2328 and] five new locomotives for French Railways from Lima Locomotive Works at Lima, Ohio. These were shipped over our lines for export to France. Taken west of Round Top W. Va. Cumberland Division." (Caption and photo by Bruce Fales, B&ORRHS collection).

COMING NEXT ISSUE

REDETAILING A HO SCALE B&O PFM CLASS L-2B 0-8-0

PHOTO STUDY - B&O CLASS L-2B 0-8-0

B&O MODEL PHOTOS FROM PROTOTYPE MODELERS MEETS

To subscribe, send an email to:
bomodeler-subscribe@yahoogroups.com

To unsubscribe send an email to:
bomodeler-unsubscribe@yahoogroups.com